

REMARKS

This paper is being provided in response to the Office Action dated February 2, 2010, for the above-referenced U.S. patent application. Applicants respectfully request consideration of the following remarks.

Applicants thank the Examiner for the indication of allowable subject matter in claims 2, 3, 8, 9, 15 and 16.

The rejection of claims 1, 4-7, 10-14 and 17-20 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,984,927 to Kojima et al. (hereinafter "Kojima") in view of U.S. Patent No. 6,621,160 to Shibamoto et al. (hereinafter "Shibamoto") is hereby traversed and reconsideration is respectfully requested.

Independent claim 1 recites a thermostable and liquid-tight joint between a first component made of metal, ceramic, or plastic and a second component made of metal, ceramic, or plastic which is exposable to the temperature effect of an external medium. A first bond is provided between the second component and the first component and including a first adhesive. A second bond including a second adhesive is provided, wherein said second adhesive has a greater elasticity than the first adhesive of the first bond, and which is placed in such a way that direct contact of the first bond with the external medium is prevented. Claims 2-6 depend directly or indirectly from independent claim 1.

Independent claim 7 recites a sensor assembly of a measuring device which is insertable into an medium to be tested including a first component and a second component joined to said first component, wherein said second component is exposed to said medium. A first bond is provided between the second component and the first component and including a first material. A second bond is provided between the second component and the first component and including a second material, wherein said second material has a greater elasticity than the first material, and wherein said second bond prevents contact of said first bond with said medium. Claims 8-13 depend directly or indirectly from independent claim 7.

Independent claim 14 recites a method of joining components, comprising disposing a first component with respect to a second component. A first bond is disposed between said first component and said second component, said first bond including a first material. A second bond is disposed between the first component and the second component, said second bond including a second material, wherein said second material has a greater elasticity than the first material, and wherein said second bond prevents contact of said first bond with an external medium. Claims 15-20 depend directly or indirectly from independent claim 14.

Kojima discloses a ceramic and metal joining structure for joining a metal shaft to a ceramic turbine wheel of a turbocharger for an internal combustion engine. The Office Action cites principally to Figure 4 and col. 4, lines 8-24 of Kojima. The Office Action notes that Kojima does not disclose use of a second bond/adhesive having a greater elasticity than a first bond/adhesive.

Shibamoto discloses a semiconductor device in which a semiconductor chip is bonded by a metal bond to one side of a heat sink formed of a material with a thermal expansion coefficient and in which the heat sink is glued to a stiffener with a silicon adhesive, a TAB tape is glued to the stiffener with an epoxy adhesive and the semiconductor chip is sealed with an epoxy scaling resin. The Office Action cites to Shibamoto as disclosing an electronic module having a first bond/adhesive and a second bond/adhesive that has a greater elasticity than the first bond/adhesive, citing specifically to col. 4, line 65 to col. 5, line 1 of Shibamoto.

Applicants respectfully submit that the field of endeavor of a ceramic and metal joining structure in a turbocharger of an internal combustion engine as in Kojima does not reasonably overlap with the field of endeavor of mounting a semiconductor device as in Shibamoto in the manner as is proposed in the Office Action to reject Applicants' claims. Applicants respectfully submit that one of ordinary skill in the art would not look to modify the features of Kojima directed to a turbocharger of an internal combustion engine with the semiconductor device processes disclosed in Shibamoto.

In particular, the Office Action (page 3) states that the obviousness to one of ordinary skill in the art to combine Kojima and Shibamoto would be "for the purpose of providing specific area of mounting portion and heat dissipation in the apparatus device." Applicant, however, respectfully disputes this stated motivation, noting that the issues, problems and solutions involved with mounting and addressing thermal stresses in an internal combustion engine are wildly disparate from the issues, problems and solutions of mounting elements on a semiconductor device and addressing heat dissipation thereof. It is simply not analytically

supportable to state that one of ordinary skill in the art would be motivated to combine such references based merely on using terms such as "mounting" or "heat dissipation" as a basis therefor. Even under the analytical foundation for obviousness set forth in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), a person of ordinary skill, or even creativity, in the art would not look to a reference like Shibamoto to modify a reference like Kojima.

Not only are the semiconductor components in Shibamoto on the order of 100 times (or more) smaller than the engine shaft components of Kojima, but further, the thermal stresses involved in the two references bear little resemblance to one another. Shibamoto addresses preventing "a package crack or breaking of wiring 10 due to thermal stress produced when the package is mounted on a circuit board or the LSI operates." (See, e.g., col. 5, lines 54-57 of Shibamoto.) Kojima, on the other hand, provides for a system that successfully operates in a thermal stress environment in which the system "is installed in an internal combustion engine and put into use under the full-throttle condition while being subjected to heat of exhaust gases of 900°C" and in which "nothing wrong or abnormal is produced in the ceramic shaft 11a after the lapse of 500 hours of usage." (See, e.g., col. 4, lines 32-40 of Kojima.) Accordingly, Applicants respectfully dispute the sufficiency of the stated motivation for the proposed combination of Kojima with Shibamoto.

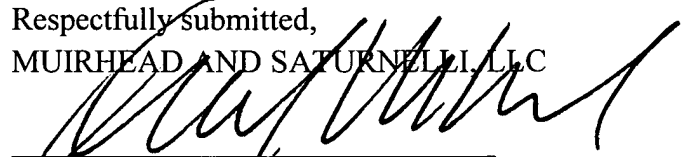
Furthermore, the Office Action cites to element 3 of Kojima's Figure 4 as showing a "first bond/adhesive between the second ceramic component and the first metal component" and a element 5 of Figure 4 as showing a "second bond/adhesive." However, Kojima' element 3 is a

buffer member that it is itself bonded, via a brazing metal, to the ceramic shaft 1 and metal shaft 2 disclosed in Kojima. Element 5 is a brazing metal that unites the metal sleeve 4 to the ceramic and metals shafts 1 and 2. (See, e.g., col. 2, lines 54-68 of Kojima.) These cited elements do not disclose the features recited by Applicants. That is, not only is Kojima entirely silent about the elasticity of the elements 3 and 5 (since Kojima's brazed metals joints appear to have nothing to do with addressing elasticity issues of adhered component joints), but further, Kojima's brazing metal 5 is not *placed in such a way that direct contact of the first bond with the external medium is prevented*, as is recited by Applicants, in some form, in the independent claims.

Accordingly, beyond the arguments set forth above disputing the permissibility of the combination of Kojima with Shibamoto, the mere citation to Shibamoto as disclosing a second bond/adhesive having a greater elasticity than a first bond/adhesive does not correct or overcome the above-noted deficiencies of Kojima with respect to Applicant's presently-claimed invention. Applicants respectfully submit that the cited references, taken alone or in appropriate combination, do not teach or fairly suggest at least the above-noted features as recited by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
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